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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,671	02/25/2004	Nelya Okun	50508-1190	3022
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THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948				
			EXAMINER FIORITO, JAMES	
			ART UNIT 1754	PAPER NUMBER

DATE MAILED: 07/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/786,671	<b>Applicant(s)</b> OKUN ET AL.	
	<b>Examiner</b> James A. Fiorito	<b>Art Unit</b> 1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 30-58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/10/2006</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 7-8, and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 7-8 and 11 are drawn to the use of elements from the "d-block" and "f-block", the claims drawn toward an element from the "d-block" or "f-block" are indefinite, because it is unclear as to the exact elements that are included and not included in the "d-block" and "f-block".

Claims 9-12 and 18-19 are considered indefinite for the following reasons: 1) In each of claims 9-12, "a" is defined but not present in the recited formula; evidently, "a" should be replaced with "u". 2) In claim 9, "g", "j" and "i" are not defined; perhaps claim 9 should depend upon claim 8? 3) In claim 10 "g", "h" and "i" are not defined; perhaps claim 10 should depend upon claim 8? 4) In claim 12, "r", "s" and "y" are not defined; perhaps claim 12 should depend upon claim 11? 5) In claim 13, "r", "t" and "y" are not defined; perhaps claim 13 should depend upon claim 11? 6) In claim 18 (upon which claim 19 depends), "TBA<sub>6</sub>Fe<sub>3</sub>PW<sub>9</sub>O<sub>37</sub>" is recited twice.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-10, 14-19, 24 and 27 are rejected under 35 U.S.C. 102(a) or 102(b) as being anticipated by Okun (Journal of Molecular Catalysis A, “Polyoxometalates on cationic silica Highly selective and efficient O<sub>2</sub>/air-based oxidation of 2-chloroethyl ethyl sulfide at ambient temperature”).**

Okun teaches binary cupric nitrate and triflate (trifluoromethanesulfonate) systems that catalyze the homogeneous air oxidation of the mustard (HD) simulant 2-chloroethyl ethyl sulfide (CEES) (see abstract), thereby teaching compositions comprising copper (II) nitrate and copper (II) trifluoromethanesulfonate, per instant claims 1-5, and methods of removing contaminants using same, per instant claim 24. The systems of Okun further comprise polyoxometalates (POMs), per instant claim 6, to enhance activity (see abstract), thus compositions comprising copper (II) nitrate, copper (II) trifluoromethanesulfonate and POMs, per instant claims 15-17, and methods of removing contaminants using same, per instant claim 27, are also taught. Specific POMs include materials of structural formulae within the scope of instant claims 7-10, 14 and 18 (see the POMs disclosed at beginning of section 2.1 on p. 284; TBA salts in Table 1 at p. 286), thus compositions falling within the scope of instant claims 7- 10, 14 and 18-19 are also taught. In summary, Okun anticipates instant claims 1-10, 14-19, 24

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and 27, since compositions and methods meeting all required limitations thereof are clearly taught.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okun (Journal of Molecular Catalysis A, "Polyoxometalates on cationic silica Highly selective and efficient O<sub>2</sub>/air-based oxidation of 2-chloroethyl ethyl sulfide at ambient temperature") in view of Emory University WO 99/53131.**

Okun is relied upon as set forth above, anticipating instant claim 6. However, while POMs of structural formulae within the scope of instant claims 7-10, 14 and 18 are taught, POMs of structural formulae within the scope of instant claims 11-13 are not.

Emory teaches that POMs of structural formulae within the scope of instant claims 7-10, 14 and 18, as well as instant claims 11-13, are effective in removing contaminants, including sulfur-containing toxic gases (see p. 1, lines 14-19; p. 4, lines 13-18; p. 5, lines 1-24; p. 8, line 4 - p. 10, line 27; p. 13, lines 17-32). Accordingly, it would have been obvious to one of ordinary skill in the art, at the time of the instant invention, to supplemented and/or at least partially substituted therefor the POMs in the systems/compositions of Okun as effective in the removal of mustard (HD) (i.e., a sulfur-

containing toxic gas) with the POMs of Emory, because, as just discussed, Emory teaches that all such POMs are effective in the removal of sulfur-containing toxic gases.

**Claims 20-23, 25-26, and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okun (Journal of Molecular Catalysis A, "Polyoxometalates on cationic silica Highly selective and efficient O<sub>2</sub>/air-based oxidation of 2-chloroethyl ethyl sulfide at ambient temperature") in view of Braue '434.**

Okun is relied upon as set forth above, anticipating instant composition of claims 1 and 6 and corresponding method claims 24 and 27. However, Okun fails to teach including the disclosed systems/compositions in a material, per instant claims 20, 21, 25 and 28, thereby failing to teach any of the specific materials of instant claims 22, 23, 26 and 29.

Braue teaches active topical skin protectants using POMs, specifically topical skin protectant formulations containing a barrier cream and an active moiety for protecting against chemical warfare agents (CWA's), the active moiety being the POMs (see abstract; Table 1 in col. 3). Accordingly, it would have been obvious to one of ordinary skill in the art, at the time of the instant invention, to manufacture the systems/compositions of Okun as topical skin protectant formulations containing a barrier cream (i.e., "a topical carrier", one of the materials specifically recited in instant claims 22, 23, 26 and 29, because, as just discussed, Braue teaches that such formulations are an effective means for providing protection against CWA's--the same purpose as the systems/compositions of Okun (mustard (HD) being a CWA).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Emory University WO 03/094977 teaches materials for degrading contaminants.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Fiorito whose telephone number is (571)272-7426. The examiner can normally be reached on 9am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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